Utility Committee Meeting

AGENDA

August 4, 2009

I. CALL TO ORDER

II. MATTERS BEFORE COMMITTEE

1. Discussion / Approval - Telecommunications Upgrade

III. ADJOURN

Utility Committee Meeting

AGENDA

August 4, 2009

Item:

Discussion / Approval - Telecommunications Upgrade

Department:

Additional Information:

Financial Impact:

Budgeted Item:

Recommendation / Request:

Viewing Attachments Requires Adobe Acrobat. Click here to download.

Attachments / click to download

Telecommunications Upgrade Presentation

Cover Memo

Item # 1

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THE CITY OF
Monroe

Telecommunications Department

Future of Technology Video

Cable Internet System

Definition of Terms:

- CMTS - Cable Modem Terminating System - The equipment that all cable modems plug into to receive internet connection.

- Switch - A piece of equipment that manages network and internet traffic and routes the packets to the correct destination.

- Bandwidth - The amount of data that can be passed along a communications channel in a given period of time. Usually measured in a per second rate.

- Node - A geographical collection of homes on the Cable TV network. It is dependant on the size of the suburb and physical limitations.

Cable Internet System

Internet & Phone Customers:

- **Cable Modem Customers** - Receive internet and phone service from the cable tv plant through a copper cable connected to the house.
    - All residential customers and small business customers
- **Fiber Optic Customers** - Receive internet and phone service through a small piece of optical glass directly connected to our switch.
    - Large business customers and government customers

Cable Internet System

Cable Internet Background Facts:

- Started High Speed Internet Service in late 90's with 1.5mb of bandwidth from Alltel
- Increased to 3mb of bandwidth from Alltel in 2001
- Built fiber to Covington in 2003 to purchase 3mb of bandwidth from the City of Covington
- Bandwidth increased in 2005 to 9mb from City of Covington
- In 2006 Georgia Public Web (GPW) co-located facilities in our basement and 30mb bandwidth was purchased from GPW and the City of Covington contract was terminated.

Cable Internet System

Cable Internet Background Facts:

- In 2007 Georgia Public Web bandwidth was increased to 45mb.
- In 2008 Broadriver Communications was added as phone provider, second internet service provider and 50mb of bandwidth was purchased.
- The City of Monroe currently operates 95mb of total internet bandwidth.
- 90% utilization of current 95mb of bandwidth during peak hours.
- Currently have 1,375 cable internet customers.

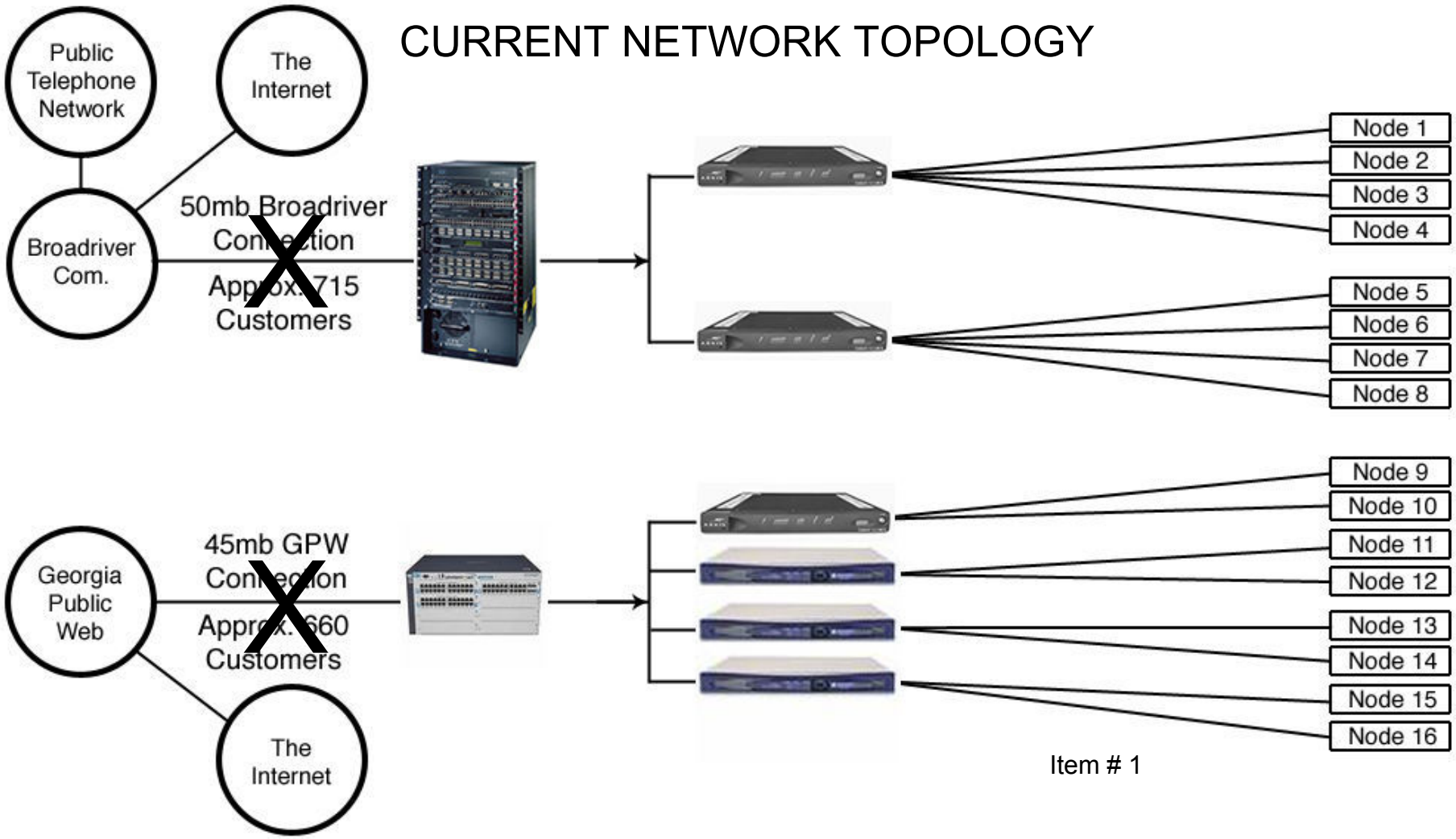
Cable Internet System

Existing Problems:

- Our current cable modem network topology is our largest problem.
- Cable modem network is divided into two completely separate operating networks.

Cable Internet System

CURRENT NETWORK TOPOLOGY



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Cable Internet System

Existing Problems:

- Cable modem network is divided into two completely separate operating networks.
- If connection to Broadriver fails, all phones would be out and half the city would be out of internet.
- If connection to GPW fails, half the city would be out of internet.
- No redundancy in our system.
- Very time consuming to make network configuration changes because each CMTS must be accessed individually and reprogrammed.

Cable Internet System

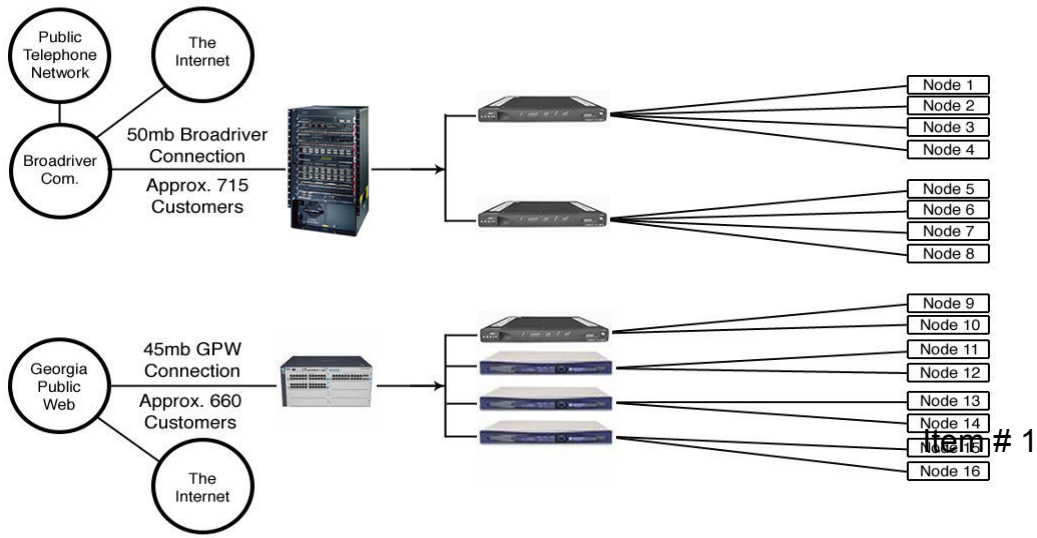
Existing Problems:

- If one CMTS was to fail, all nodes must be moved to another CMTS potentially overloading that CMTS and introducing noise into the system.
- System is not easily expandable for future growth.
- Under current configuration we are not able to use full provisioning and diagnostics tools provided by iBBS.
- We have our Current Network Topology because of 10 years of adding to the cable modem system as capacity upgrades were needed.

Cable Internet System

The Bottom Line:

- We are at a point where we HAVE to do something.
- Our system has been pieced together over the past 10yrs, it is not easily upgradeable for future expansion, it is difficult to program and maintain and it is not redundant.

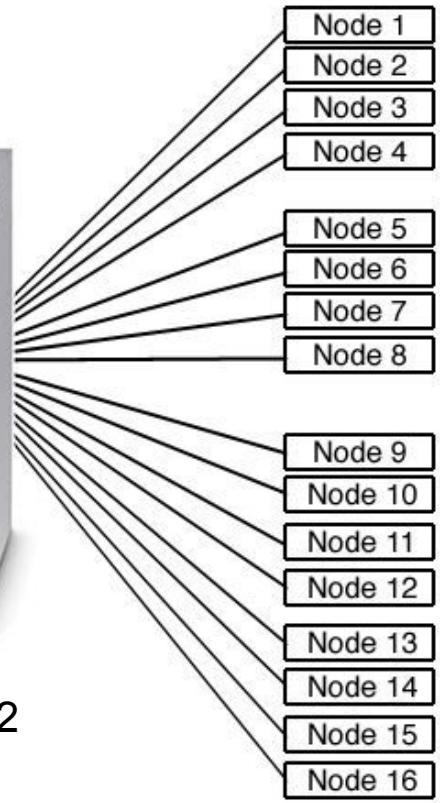


Cable Internet System

CHANGE OUR NETWORK TOPOLOGY

Cisco - uBR10012
CMTS

Item # 1



Cable Internet System

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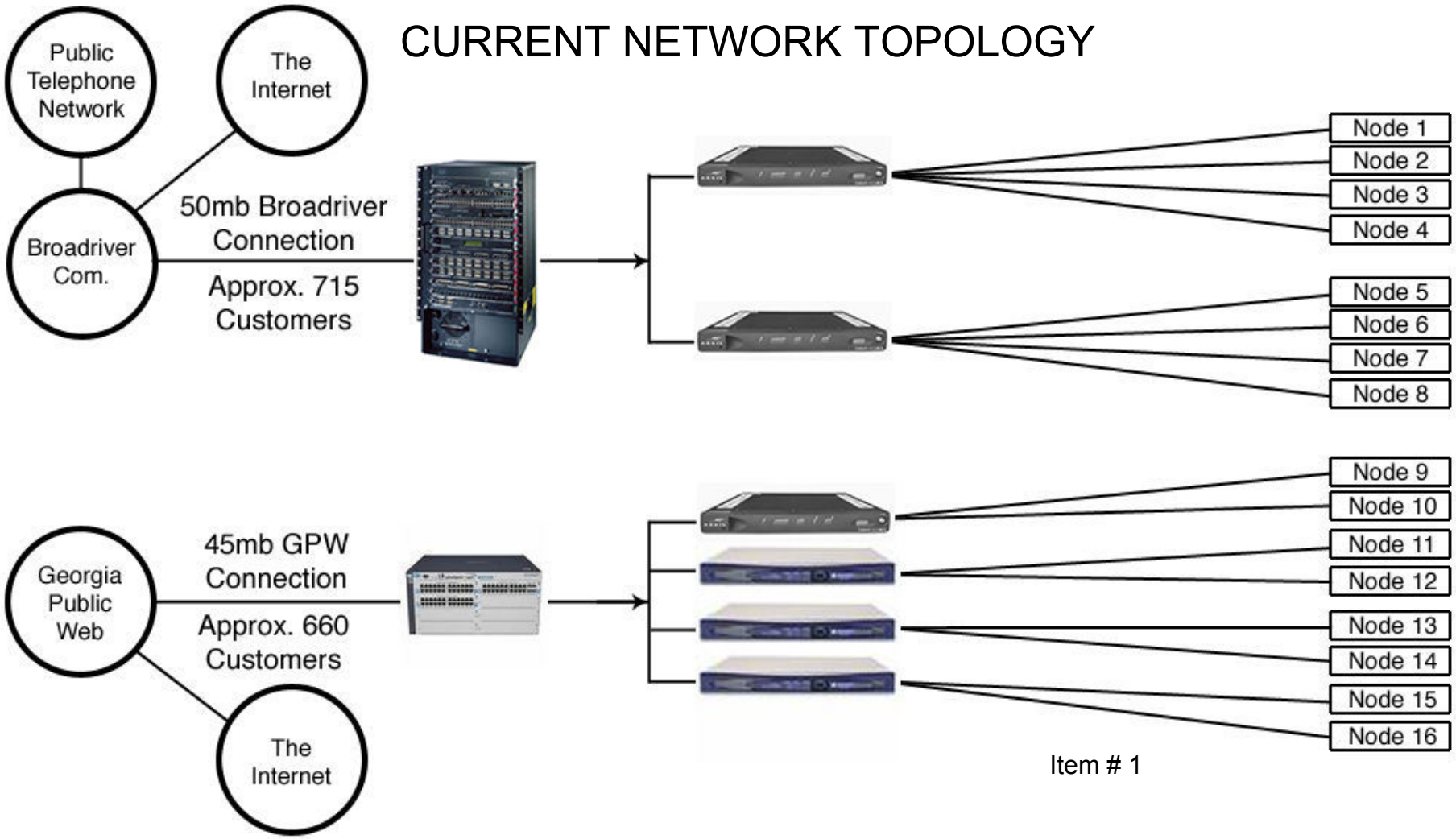

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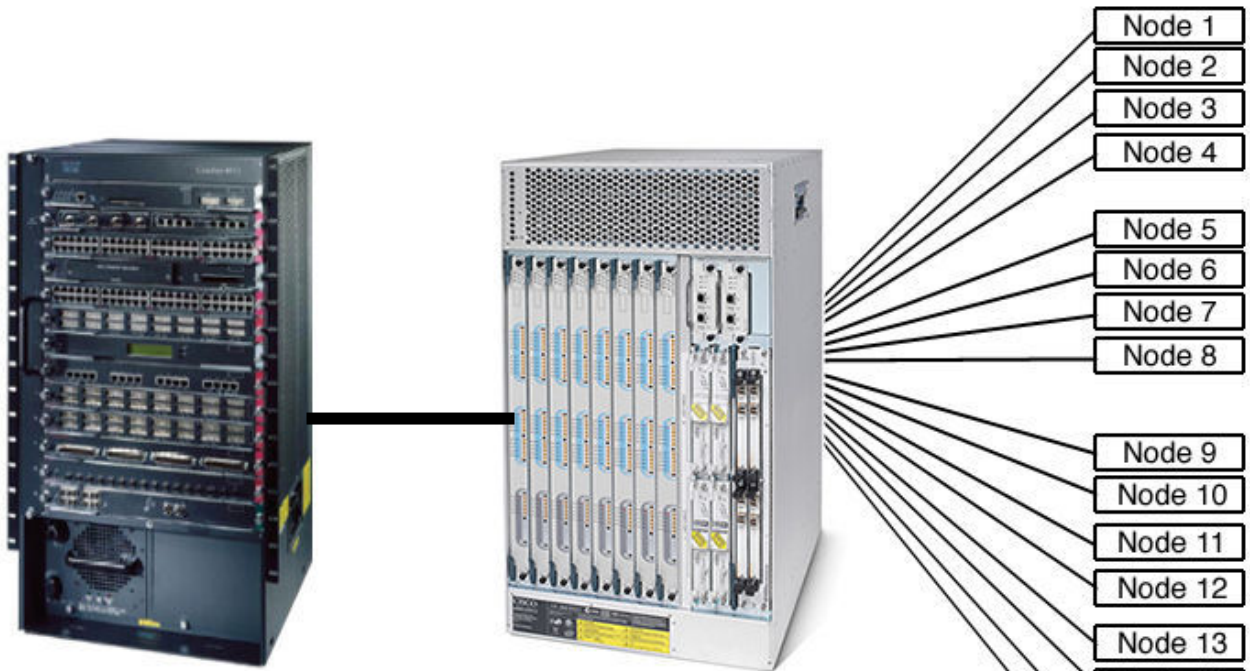
Cable Internet System

CHANGE OUR NETWORK TOPOLOGY



Cisco - uBR10012
CMTS

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Cable Internet System

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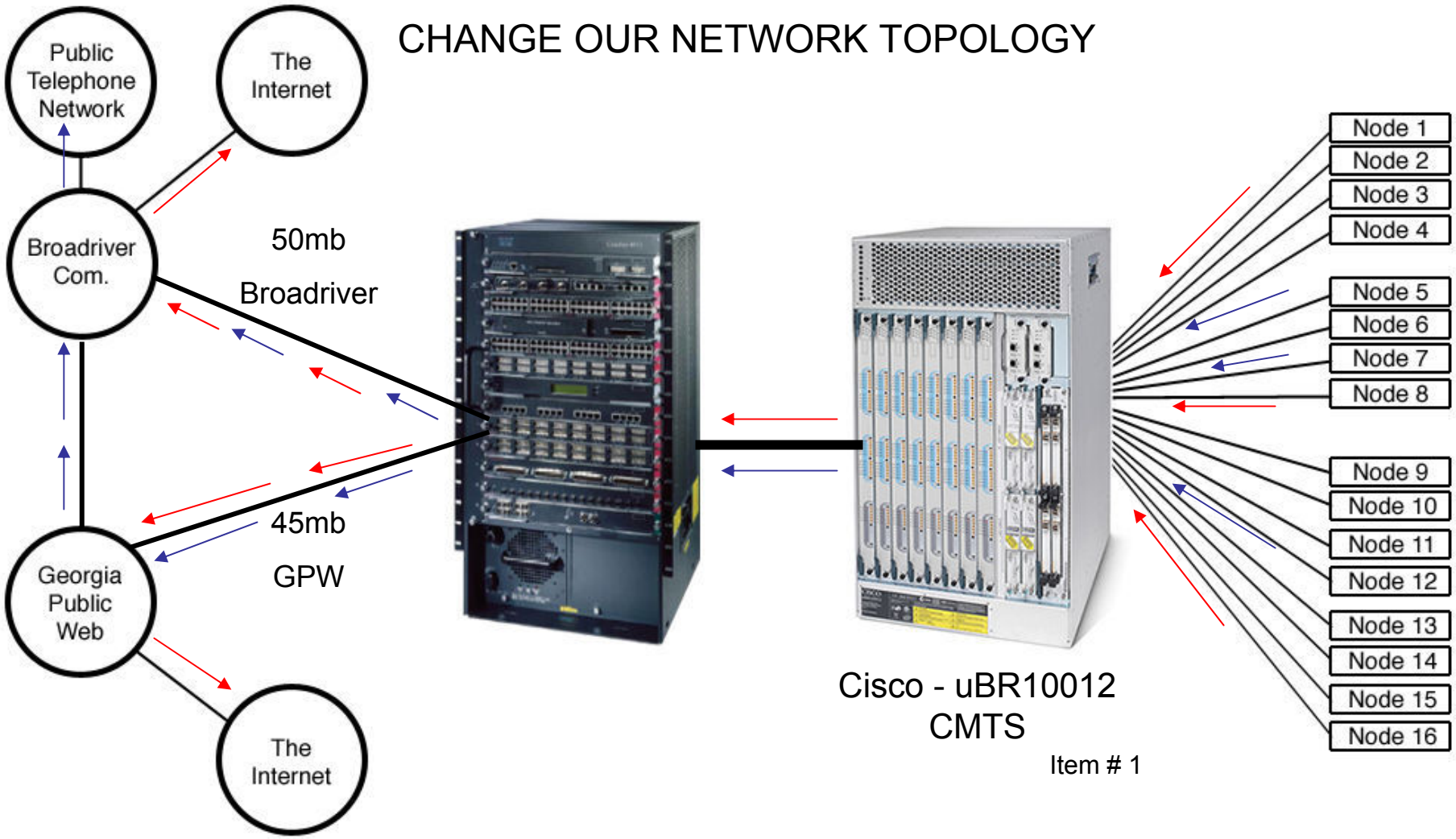

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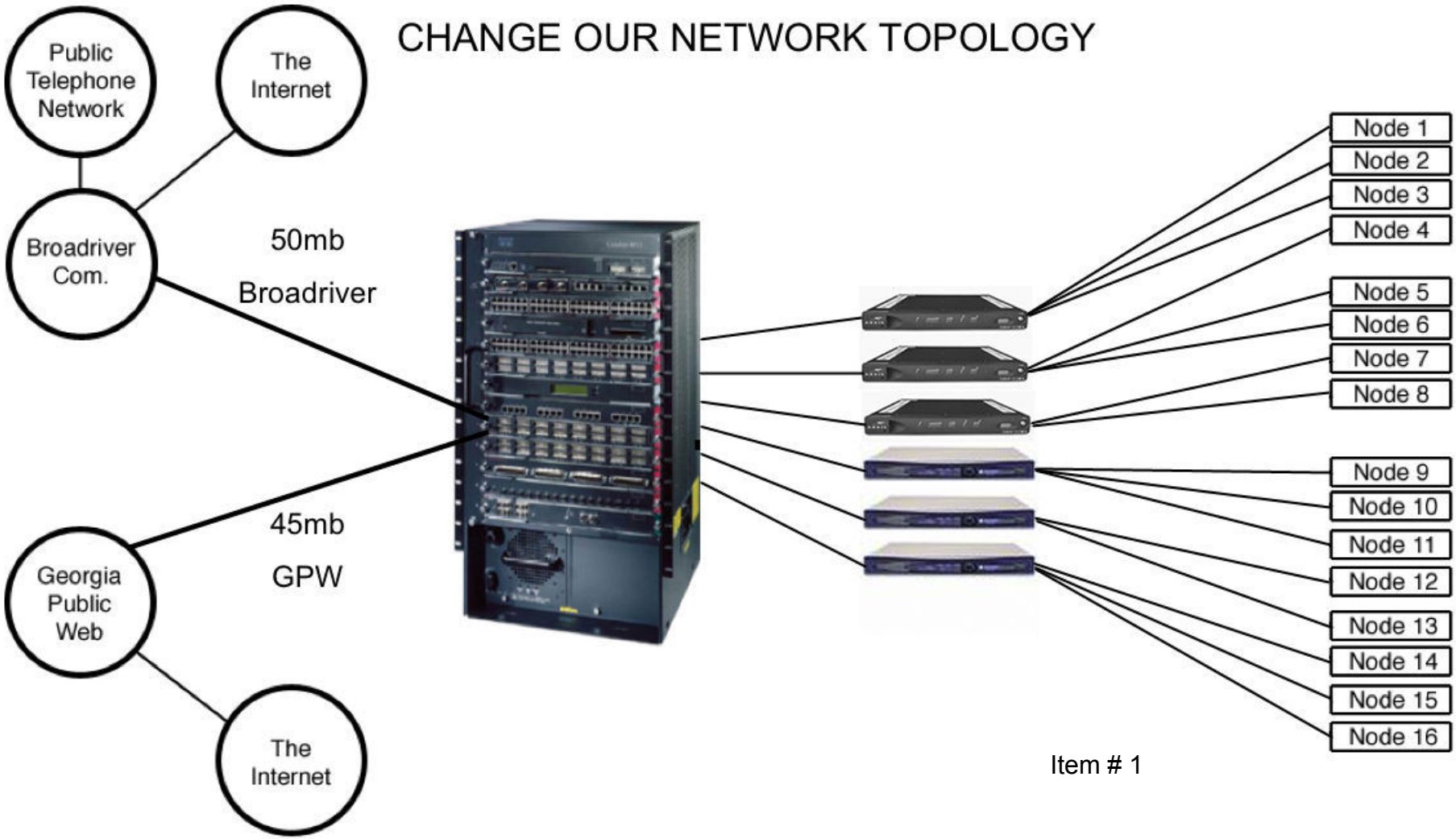
Cable Internet System



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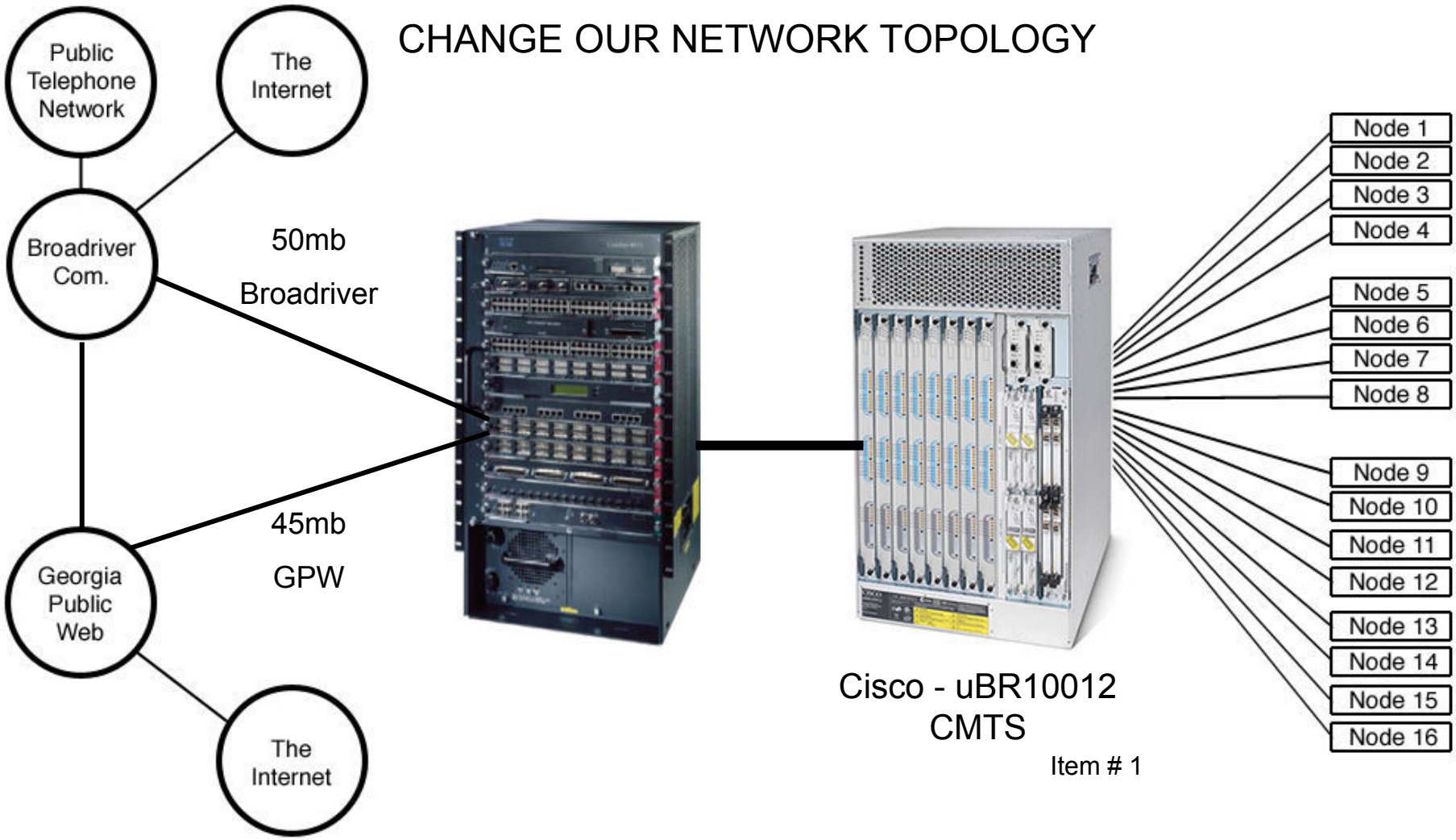
Cable Internet System

CHANGE OUR NETWORK TOPOLOGY



Cisco - uBR10012
CMTS

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Telecommunications Department

Why upgrade our cable modem system?

- Provide reliability and scalability for future growth.
- Quality business growth and economic development.
- To continue to provide our customers with competitive, up to date telecom services.
- Internet Revenue of $47,000/mo
- With infrastructure upgrades we believe we can double revenue through phone sales.

Cable Internet System

Internet & Phone Customers:

- **Cable Modem Customers** - Receive internet and phone service from the cable tv plant through a copper cable connected to the house.
    - All residential customers and small business customers
- **Fiber Optic Customers** - Receive internet and phone service through a small piece of optical glass.
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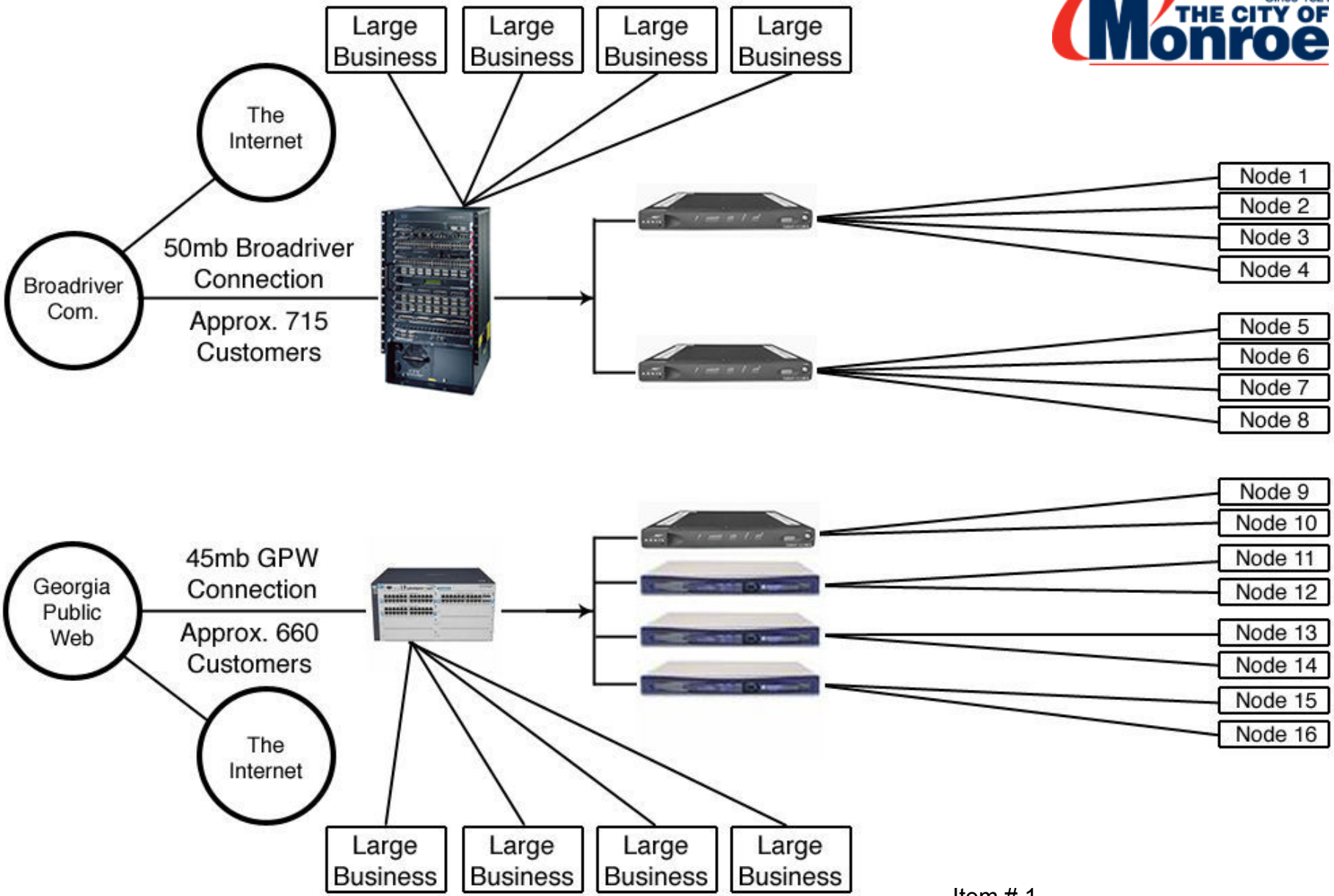
Large Business
Large Business
Large Business
Large Business
The Internet
Broadriver Com.
50mb Broadriver Connection
Approx. 715 Customers
Node 1
Node 2
Node 3
Node 4
Node 5
Node 6
Node 7
Node 8
Georgia Public Web
45mb GPW Connection
Approx. 660 Customers
The Internet
Node 9
Node 10
Node 11
Node 12
Node 13
Node 14
Node 15
Node 16
Large Business
Large Business
Large Business
Large Business

Item # 1

Fiber Optic Network

Fiber Optic Background Facts:

- Fiber Optic plant reaches 5 counties - Walton, Newton, Oconee, Gwinnett & Morgan
- Core fiber built in 1996 to support Walton County Schools
- No debt on existing fiber plant
- Currently service and maintain large connections for Georgia Public Web, Walton Co. BOE, Walton EMC, Walton Regional Medical Center and many other commercial customers.

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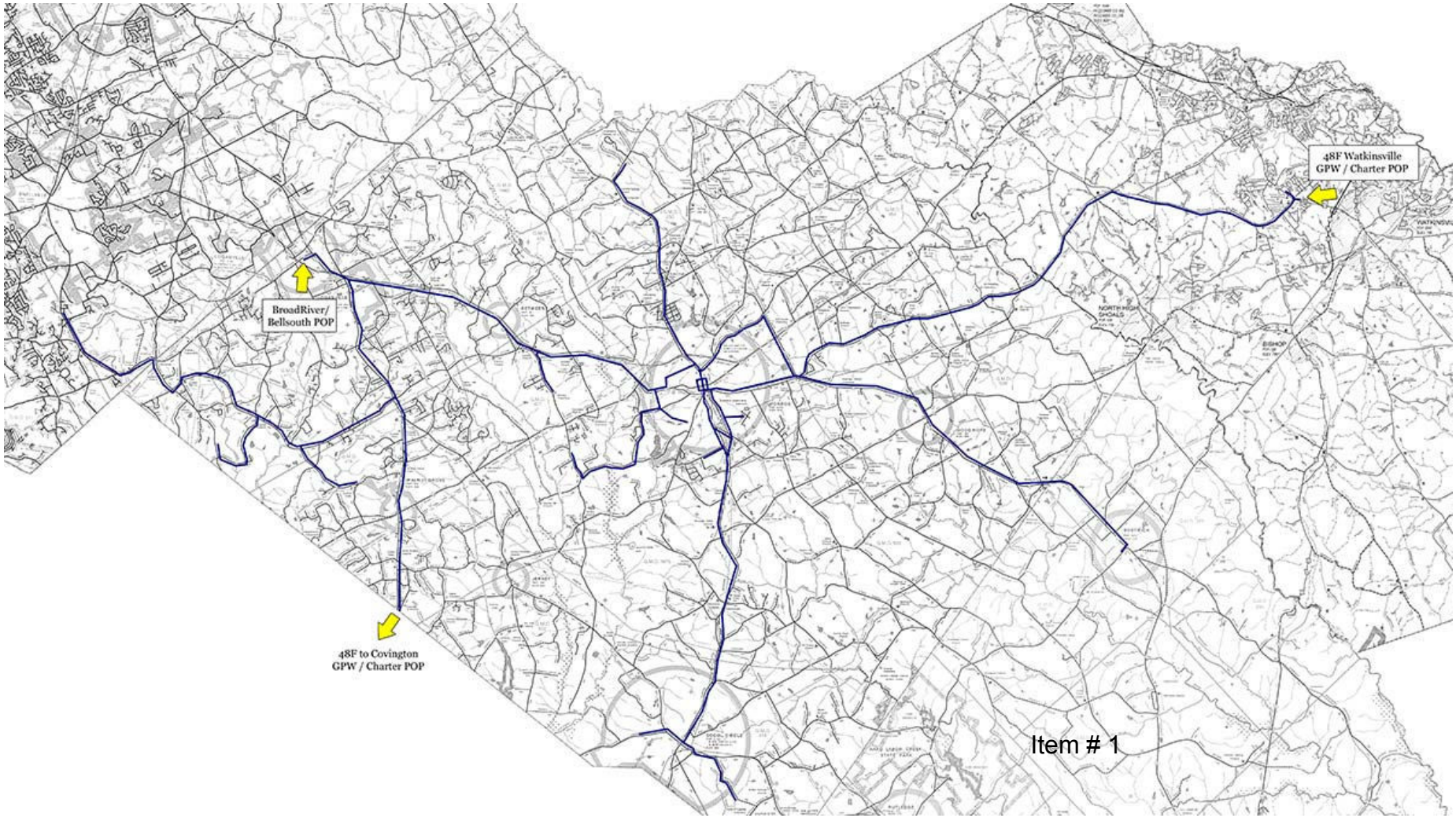
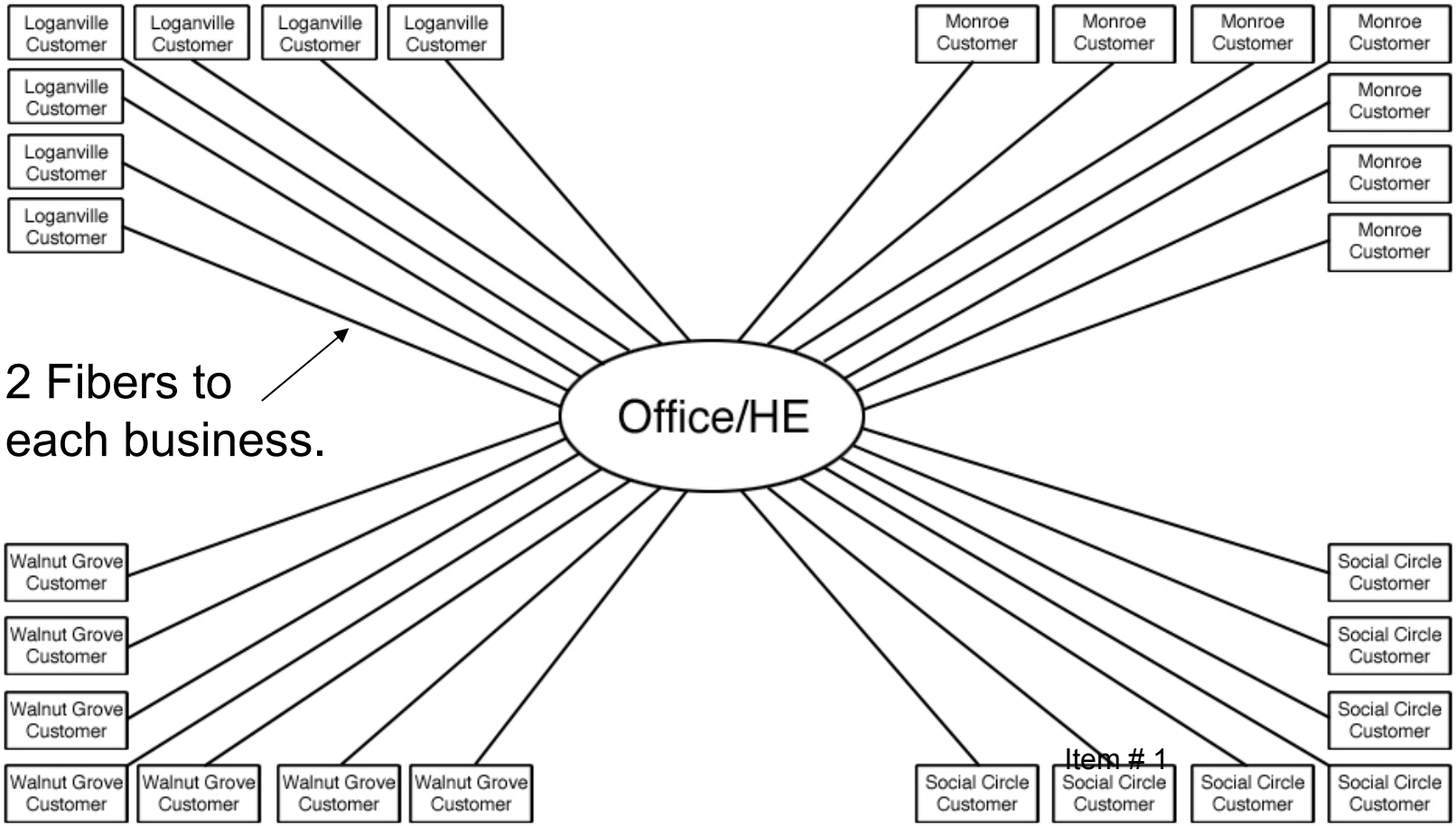
Fiber Optic Network



Item # 1

Fiber Optic Network

CURRENT NETWORK TOPOLOGY



Fiber Optic Network

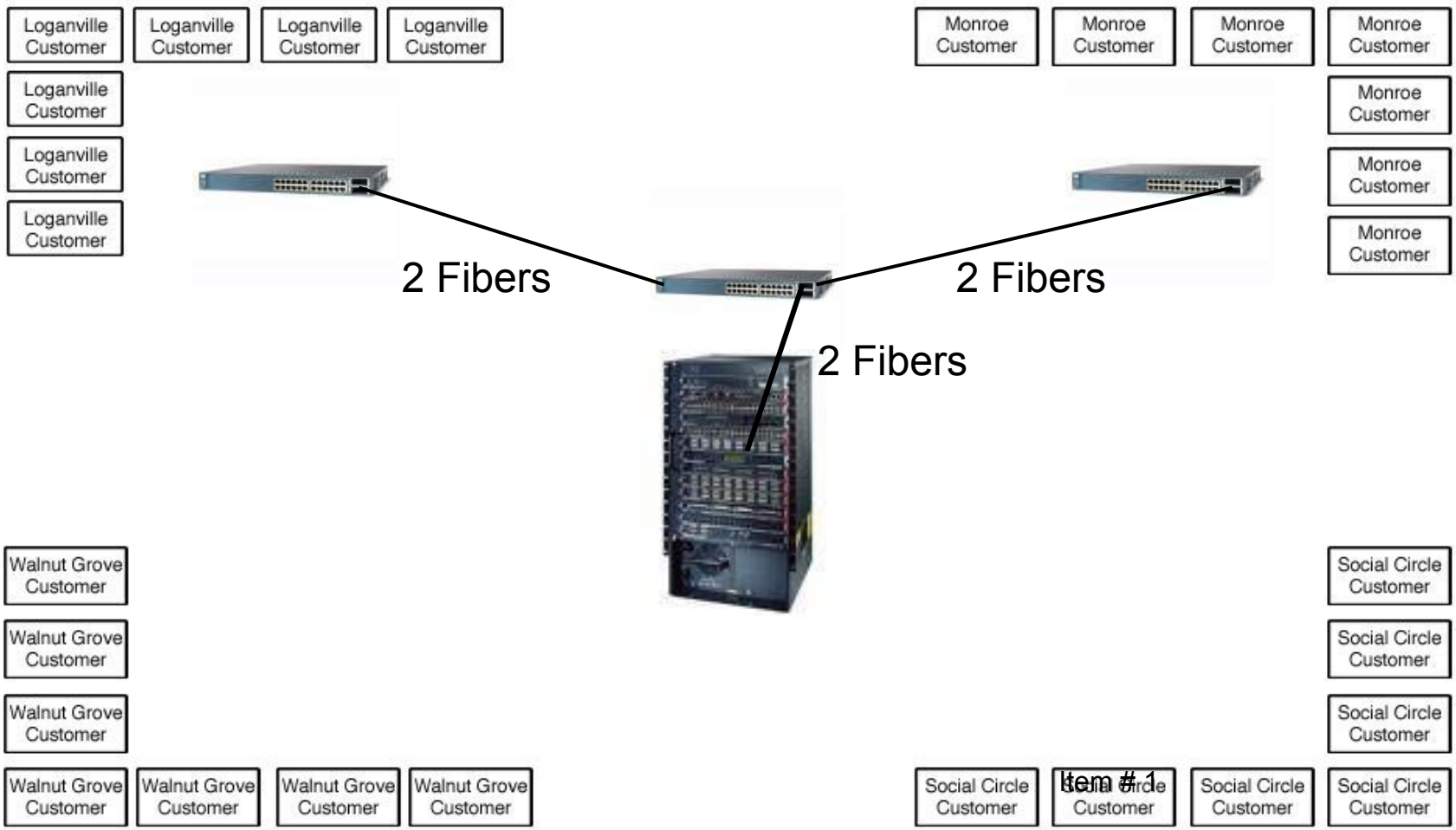
Existing Problems:

- Fiber Optic plant is reaching or has reached capacity in many areas
- Fiber plant is reactive instead of proactive
- No way to check service status without going to customer location
- No way to monitor hardware performance and statistics
- Fiber plant is not scaleable for future growth

Item # 1

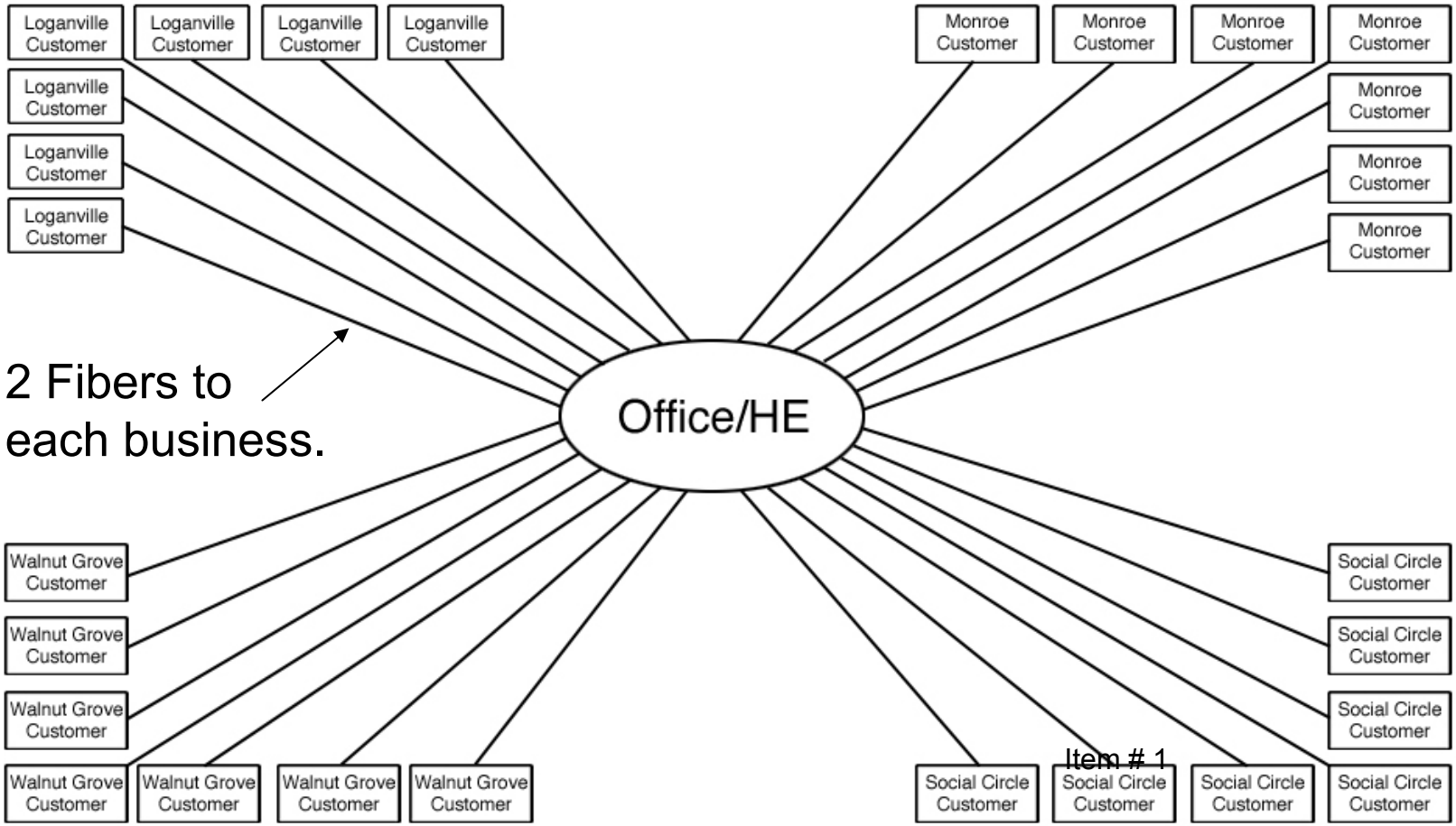
CHANGE NETWORK TOPOLOGY

Fiber Optic Network

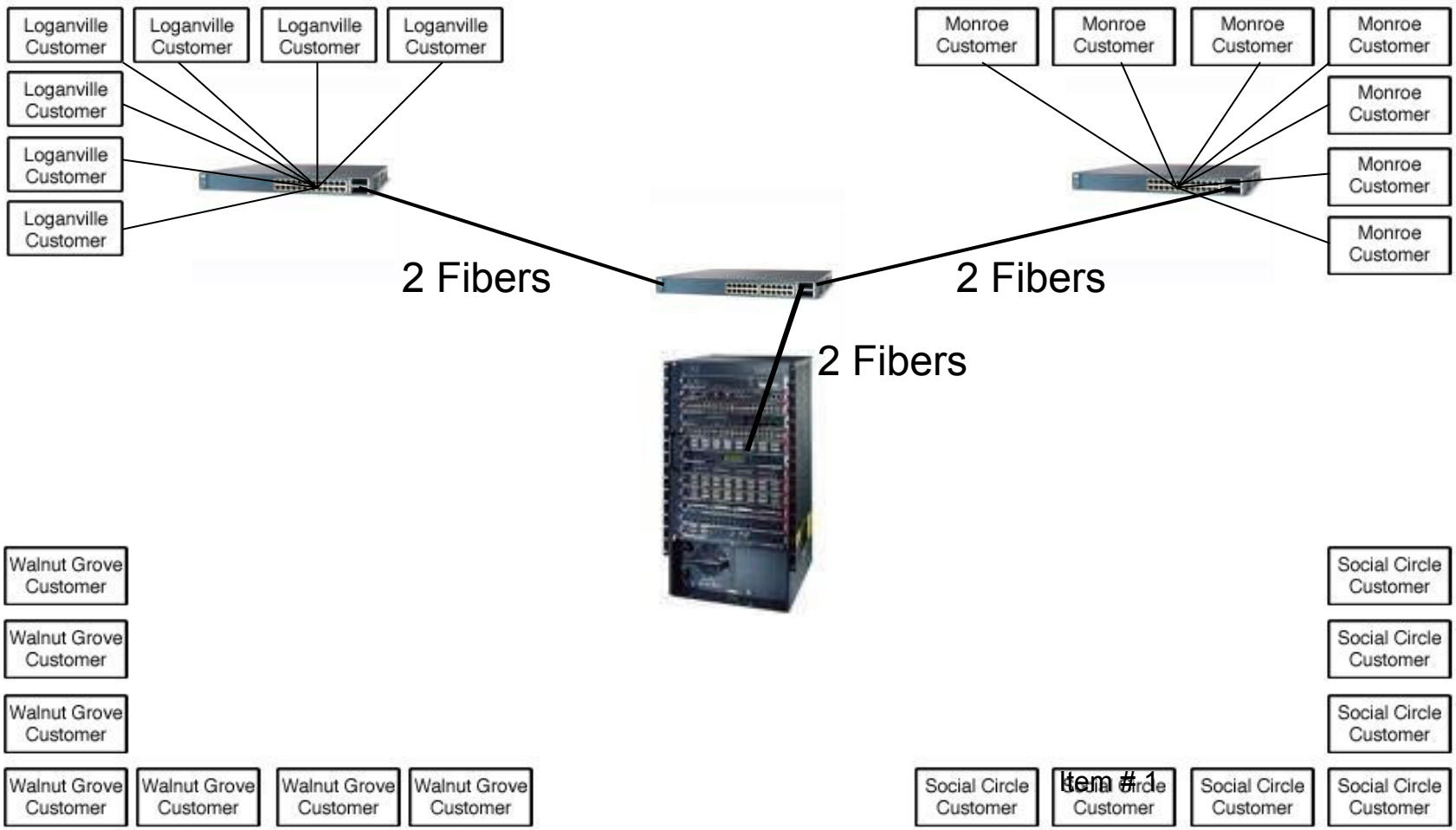


Fiber Optic Network

CURRENT NETWORK TOPOLOGY



Fiber Optic Network



Telecommunications Department

Why upgrade our fiber system?

- Provide reliability and scalability for future growth.
- Proactive in system monitoring and customer support.
- Quality business growth and economic development.
- To provide competitive business services in our community.
- Internet Revenue of $20,000/mo
- With a large offering of business services tailored to fit each business individually, we believe we can again increase our revenue to record numbers in our department.

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Telecommunications Department

Why upgrade our systems as a whole?

Cable Revenue

1997 - $1,366,785.28

1998 - $1,491,081.60

1999 - $1,669,835.10

2000 - $1,956,291.63

2001 - $2,287,071.00

2002 - $2,423,478.32

2003 - $2,448,462.19

2004 - $2,703,319.12

2005 - $3,044,482.64

2006 - $3,051,942.66

2007 - $3,066,768.36

2008 - $3,011,996.42

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Cable Internet Costs:

Cisco uBR-10012 CMTS	$155,452.27

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Fiber Internet Costs:

Cisco WS-3560E-12SD		$12,424.32
Cisco WS-3560E-12SD		$14,424.32
Cisco WS-3560E-12SD		$14,424.32
Cisco ME-3400EG-12CS		$5,342.30
Cisco WS-3560E-24TD		$5,851.49
Cisco WS-3560E-24TD		$5,851.49
Cisco WS-X6548-GE-TX		$5,000.00
3 - Pole Mount Active Box		$16,500.00
	Fiber Total:	**$79,818.24**
System Engineering		$5,000.00
	Grand Total:	**$240,270.51**

Telecommunications Department

Televison Upgrade Costs:

HITS NAS-RAC	$130,000
Set-Top Boxes	$50,000
44 HD Channels	$121,600
Television Total:	**$301,600**
TV & Internet Total:	**$541,870.51**